

8.3 ALLEGANY COUNTY

This chapter presents information about stream conditions of potential management interest in Allegany County based on the 2000-2004 Maryland Biological Stream Survey (MBSS) results. Information from MBSS data collected between 1994 and 1997 can be found in MDNR 2001a.

8.3.1 Ecological Health

Based on the three ecological health indicators used by the MBSS, the overall condition of Allegany County streams during 2000-2004 was Fair (Figure 8-6). The FIBI results indicate that 22% of the streams in the county were in Good condition, while 39% rated Good using the BIBI. Using the combined indicator (CBI), 44% of the streams in the county scored as Poor or Very Poor, 18% scored as Good, and 37% scored as Fair.

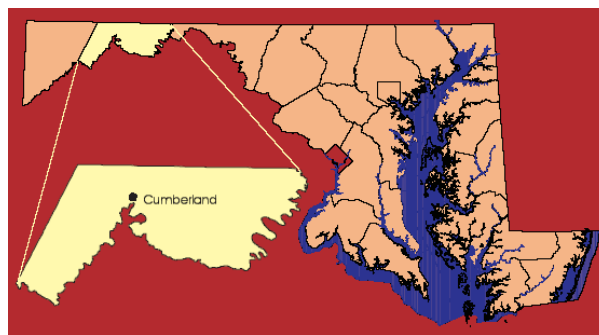
In general, IBI scores were low in the Georges Creek watershed and in the streams around Cumberland. Concentrations of stream sites with high IBI scores were apparent in the Sideling Hill, Fifteen Mile Creek, and Upper Town Creek Watersheds. The highest rated stream in Allegany County using the Combined Biotic Index (CBI) was Fifteen Mile Creek, while the lowest rated streams included an unnamed tributary to Jennings Run, Georges Creek, and an unnamed tributary to Deep Run (Table 8-5). Based on Stream Waders volunteer data, the Georges Creek watershed had a large proportion of sites rated as Poor or Very Poor for benthic macroinvertebrates; the Sideling Hill and Town Creek watersheds had the largest proportion of stream sites rated Good (Table 8-6).

Two MBSS Sentinel sites were located in Allegany County, Mill Run and Fifteen Mile Creek. Sentinel sites were chosen to provide a representation of the best remaining streams around the state and track natural variations in stream health. Where possible, Sentinel sites are located in watersheds with as much protected land as possible. More information about the MBSS Sentinel stream network is found in: 2000-2004 Maryland Biological Stream Survey Volume 11: Sentinel Sites (http://www/dnr/Maryland.gov/streams/pubs/ea05-8_sentinel.pdf).

8.3.2 Physical Habitat

8.3.2.1 Overall Condition

Based on the Physical Habitat Index (PHI), 46% of the streams in Allegany County had Minimally Degraded habitat and 21% had Degraded or Severely Degraded habitat. The remaining 34% had Partially Degraded



habitat (Figure 8-7). Generally poor habitat was apparent in Lower Georges Creek and in Wills Creek, but physically degraded streams were scattered throughout the county. In contrast, concentrations of streams with Minimally Degraded habitat were apparent in the Dan's Mountain area as well as Town Creek and Fifteen Mile Creek.

8.3.2.2 Trash

Nearly 67% of the stream miles in Allegany County were rated Optimal for trash (Figure 8-8). An estimated 12% were rated as being in Marginal or Poor condition. Concentrations of sites with high levels of trash were observed in lower Georges Creek and in the Cumberland area, but there were several isolated areas with high trash levels in other portions of the county.

8.3.2.3 Channelization

About 17% of the stream miles in Allegany County had some degree of channelization (Table 8-4). Concrete was the most common type of channelization, followed by culvert pipes, rip-rap, gabions, and dredged channels. Most channelization was found in the central and eastern portions of the county (Figure 8-9).

8.3.2.4 Inadequate Riparian Buffer

A total of 7% of the stream miles in Allegany County had no riparian buffers (Table 8-3). In addition, 4% of stream miles had severe breaks in the riparian buffer. There were generally few areas in the county that had no riparian buffer, and these were scattered throughout the eastern two-thirds of the county (Figure 8-10). However, there was a concentration of poorly buffered streams in the Wills Creek watershed and in the area near Oldtown. Severe breaks in the riparian buffer occurred in a few locations throughout the county, but concentrations of these conditions were apparent in Wills Creek and near Oldtown. Additional information about buffer breaks, analyzed by county, is provided in: 2000-2004 Maryland Biological Stream Survey Volume 10: Riparian Zone Conditions (http://www/dnr/Maryland.gov/streams/pubs/ea05-7_riparian.pdf).

8.3.2.5 Eroded Banks/Bedload Movement

Nearly 88% of the stream miles in Allegany County were rated as having very low (Optimal) bank erosion (Figure 8-11). In contrast, only 1% of streams rated as having severe (Poor) bank erosion. No geographic trend in the distribution of Poor or Marginal sites was apparent.

Over 71% of stream miles in Allegany County had moderate or extensive bar development (an indication of bedload movement during storms) (Figure 8-11). The remaining 29% of streams had bar formation classified as minor. Concentrations of sites rated as having extensive bar formation were found in Wills Creek and Town Creek, but there were also streams with extensive bar formation scattered throughout the county.

8.3.3 Key Nutrients

8.3.3.1 Nitrate-Nitrogen

A total of 76% of the stream miles in Allegany County had nitrate-nitrogen levels less than the 1 mg/l threshold that is the upper bound for streams in mostly forested watersheds (Figure 8-12). No streams had levels above 5 mg/l, the level beyond which biological impacts are evident based on MBSS data. Most sites with elevated nitrate-nitrogen levels (between 1 and 5 mg/l) were found in the area west of Cumberland.

8.3.3.2 Total Phosphorus

An estimated 95% of all stream miles in Allegany County had spring baseflow values of total phosphorus at or below the upper bound of streams in mostly forested (>90%) watersheds (Figure 8-13). Conversely, no streams had levels associated with probable biological impacts. A small area with elevated total phosphorus levels was apparent in the upper Wills Creek watershed.

8.3.4 Stream and River Biodiversity

To provide a means to prioritize stream systems for biodiversity protection and restoration within each county and on a statewide basis, a tiered watershed and stream reach prioritization method was developed. Special emphasis was placed on state-listed species, stronghold watersheds for state-listed species, and stream reaches with one or more state-listed aquatic fauna. Fauna considered included stream salamanders, freshwater fishes, and freshwater mussels. Rare, pollution-sensitive benthic macroinvertebrates collected during the 1994-2004 MBSS were also used to identify the suite of

watersheds necessary to conserve the full array of known stream and river biota in Maryland. A complete description of the biodiversity ranking process is found in: 2000-2004 Maryland Biological Stream Survey Volume 9: Stream and Riverine Biodiversity (http://www/dnr/Maryland.gov/streams/pubs/ea05-6_biodiv.pdf).

Of the seven watersheds in Allegany County, the highest rated for stream and river biodiversity was Potomac River–Allegany County/Sideling Hill Creek, a Tier 1 watershed that was a stronghold for one or more state-listed species (Figure 8-14). The other Tier 1 watershed in the county was Town Creek, and the only Tier 2 watershed (Stronghold for non-state listed species of Greatest Conservation Need (GCN)) was Fifteen Mile Creek. In contrast, Georges Creek was the lowest ranking watershed for Stream and River Biodiversity in Allegany County, and nearly in the state (83rd of 84). Reaches that had either state-listed species or high intactness values were highlighted to facilitate additional emphasis in planning restoration and protection activities.

8.3.5 Stressors

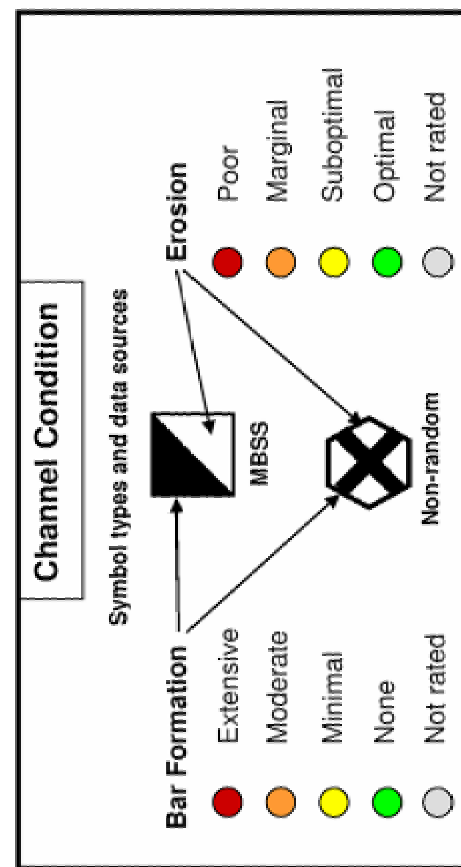
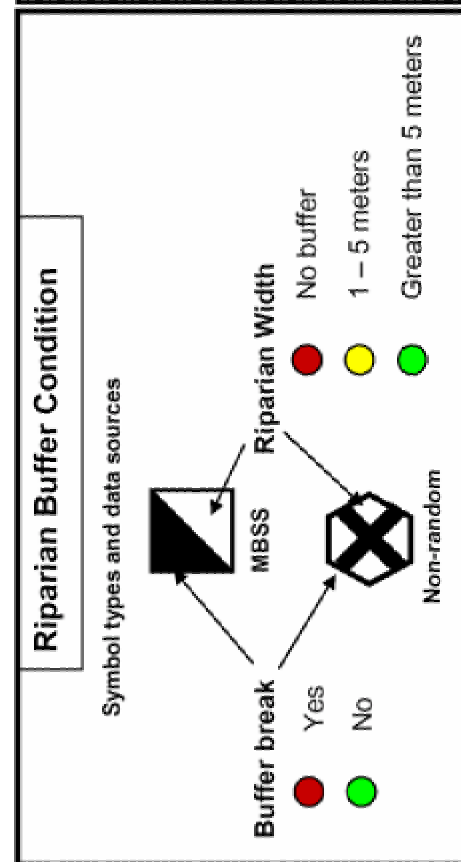
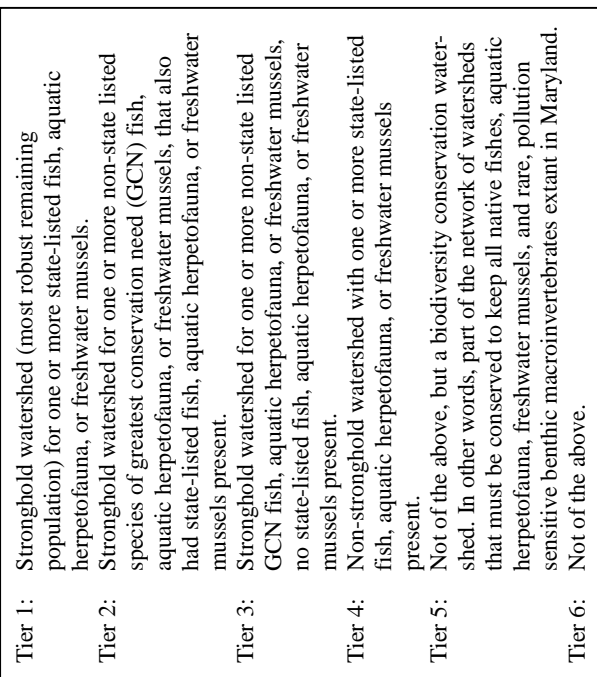
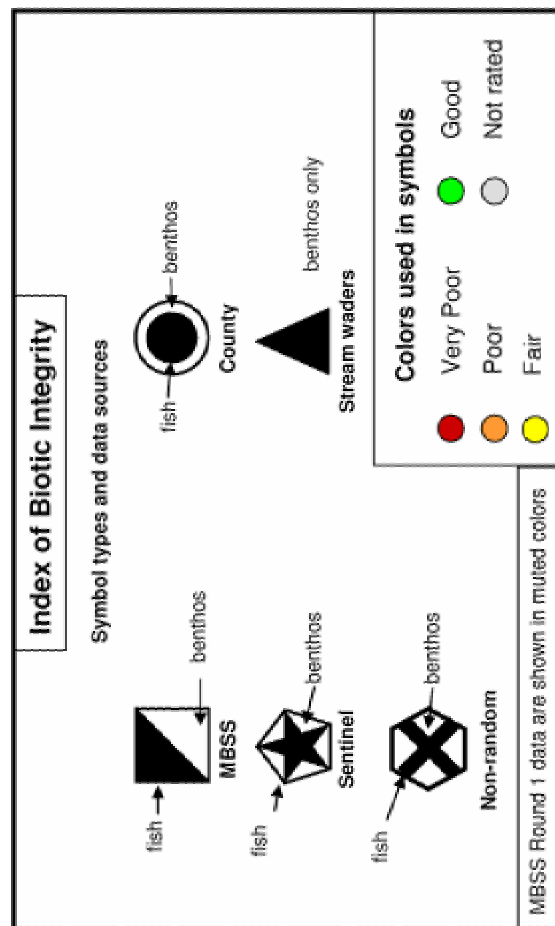
At 71% of stream miles, the most extensive stressor characterized by the MBSS in Allegany County was non-native terrestrial plants in the riparian zone (Figure 8-5). Other stressors found extensively were: non-native aquatic fauna (present in 43% of stream miles); acid deposition (observed in 38% of stream miles); and Acid Mine Drainage (10% of stream miles). Two other stressors affected 5% or more of the stream miles in the county. These were channelization, and areas with no riparian buffer.

AN IMPORTANT NOTE ON BIODIVERSITY MANAGEMENT

Perhaps the largest ongoing natural resources restoration and protection effort in Maryland is associated with the Chesapeake Bay. In most cases, freshwater biodiversity is not specifically considered during placement and prioritization of Bay restoration and protection projects. In this report and in the more detailed volume in the series on aquatic biodiversity, a system of biodiversity ranking is presented to provide counties and other stewards with a means to plan appropriate protection and restoration activities in locations where they would most benefit stream and river species. Given the historically low level of funding for biodiversity protection and restoration in Maryland and elsewhere, the potential benefit of incorporating freshwater biodiversity needs into other efforts is quite large.

However, it is important to note that although freshwater taxa are the most imperiled group of organisms in Maryland, other groups and individual species not typically found in freshwater habitats are also at high risk and constitute high priority targets for conservation. In addition, freshwater taxa that prefer habitats such as small wetlands may not be well characterized by the ranking system employed here. To conserve the full array of Maryland's flora and fauna, it is clearly necessary to use other, landscape-based tools and consider factors such as maintaining or reconnecting terrestrial travel corridors.

Key to MBSS 2000-2004 County Maps



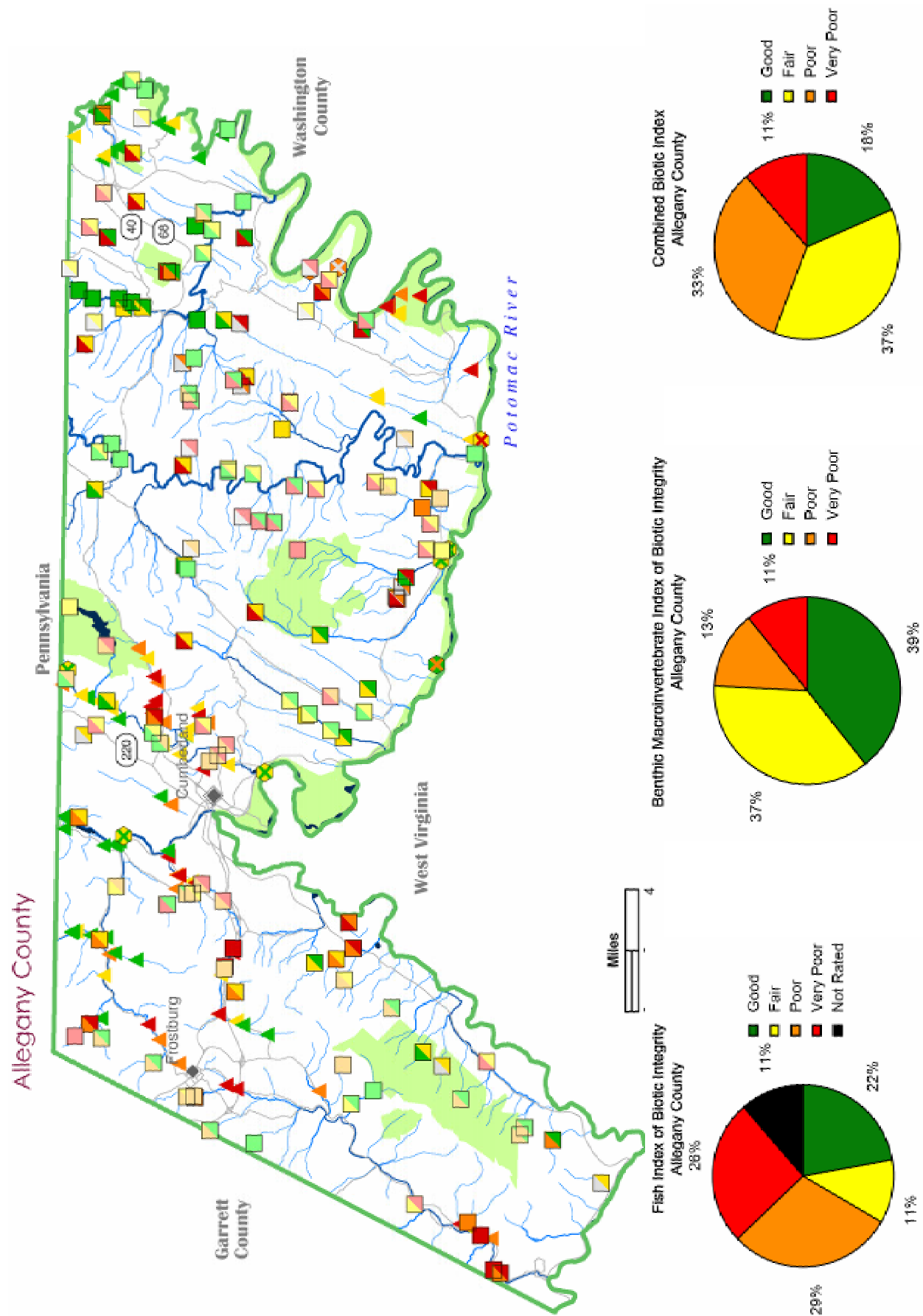


Figure 8-6. Benthic Index of Biotic Integrity (BIBI) and Fish Index of Biotic Integrity (FIBI) pie charts and map of stream health for Allegheny County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie chart represents 2000-2004 data only, Combined Biotic Index pie chart represents mean of FIBI and BIBI).

Table 8-5. MBSS sites sampled in Allegany County during 1994- 2004, ranked by Combined Biotic Index Score (CBI)

Allegany County - MBSS Sites			
SITE NUMBER	STREAM NAME	WATERSHED	CBI
<i>Best (in order of CBI score)</i>			
FIMI-207-S-2003	Fifteen Mile Creek	Fifteen Mile Creek	4.75
FIMI-401-R-2000	Fifteen Mile Creek	Fifteen Mile Creek	4.63
FIMI-207-S-2002	Fifteen Mile Creek	Fifteen Mile Creek	4.50
PRLN-626-S-2003	Mill Run	Potomac River Lower North	4.50
AL-A-033-314-95	Fifteen Mile Creek	Fifteen Mile Creek	4.46
AL-A-688-319-95	Fifteen Mile Creek	Fifteen Mile Creek	4.46
SIDE-402-R-2001	Sideling Hill Creek	Sideling Hill Creek	4.46
TOWN-417-R-2002	Town Creek	Town Creek	4.46
AL-A-524-211-95	Fifteen Mile Creek UT	Fifteen Mile Creek	4.42
FIMI-207-S-2000	Fifteen Mile Creek	Fifteen Mile Creek	4.38
FIMI-207-S-2001	Fifteen Mile Creek	Fifteen Mile Creek	4.38
TOWN-409-R-2000	Town Creek	Town Creek	4.38
FIMI-207-S-2004	Fifteen Mile Creek	Fifteen Mile Creek	4.33
AL-A-709-303-95	Fifteen Mile Creek	Fifteen Mile Creek	4.33
FIMI-202-R-2000	Black Sulphur Run	Fifteen Mile Creek	4.29
TOWN-420-R-2002	Town Creek	Town Creek	4.29
GEOR-107-R-2003	Elk Lick Run	Georges Creek	4.25
GEOR-114-R-2003	Staub Run	Georges Creek	4.25
PRLN-626-S-2000	Mill Run	Potomac River Lower North	4.25
FIMI-407-R-2000	Fifteen Mile Creek	Fifteen Mile Creek	4.21
AL-A-146-301-95	Fifteen Mile Creek	Fifteen Mile Creek	4.17
TOWN-205-R-2002	Murley Branch	Town Creek	4.17
TOWN-419-R-2002	Town Creek	Town Creek	4.17
AL-A-441-309-95	White Sulphur Run	Fifteen Mile Creek	4.13
COCA-303-N-2003	Seven Springs Run	Potomac River Lower North	4.08
<i>Worst (most degraded sites first)</i>			
WILL-107-R-2004	Jennings Run UT1	Wills Creek	1.13
AL-A-343-307-96	Georges Creek	Georges Creek	1.17
AL-A-061-125-95	Deep Run UT	Fifteen Mile Creek	1.25
PRLN-105-R-2003	Trading Run	Potomac River Lower North	1.38
AL-A-485-227-96	Potomac River UT	Potomac River Lower North	1.50
PRAL-104-R-2001	Devils Alley	Potomac River	1.50
TOWN-111-R-2002	Town Creek UT2	Town Creek	1.50
WILL-301-C-2000	Braddock Run	Wills Creek	1.50
AL-A-054-320-96	Georges Creek	Georges Creek	1.58
AL-A-254-326-96	Braddock Run	Wills Creek	1.58
WILL-212-R-2004	Braddock Run	Wills Creek	1.63
WILL-301-C-2001	Braddock Run	Wills Creek	1.63
AL-A-413-308-96	Braddock Run	Wills Creek	1.71
AL-A-646-207-95	Potomac River UT	Potomac River	1.75
AL-A-268-221-96	Seven Springs Run	Potomac River Lower North	1.75
TOWN-110-R-2002	Burnt House Hollow	Town Creek	1.75
AL-A-296-226-96	Jennings Run UT	Wills Creek	1.75
PRLN-120-R-2003	Brice Hollow Run	Potomac River Lower North	1.83
AL-A-425-314-96	Elk Lick Run	Evitts Creek	1.88
EVIT-113-R-2004	Evitts Creek (Brashier Hollow Run) UT	Evitts Creek	1.88
AL-A-343-330-96	Georges Creek	Georges Creek	1.88
SIDE-109-R-2001	Sideling Hill Creek UT2 UT1	Sideling Hill Creek	1.88
WILL-219-R-2004	Braddock Run	Wills Creek	2.00
AL-A-221-107-96	Georges Creek UT	Georges Creek	2.00
EVIT-109-R-2004	Willow Brook	Evitts Creek	2.00

Table 8-6. Stream Waders sites sampled in Allegany County during 2000-2004, ranked by Family-level Benthic Index of Biotic Integrity

Allegany County - Stream Wader Sites				
WATERSHED	# GOOD	# FAIR	# POOR	# VERY POOR
Evitts Creek	5	14	7	6
Fifteen Mile Creek	5	8	5	1
Georges Creek	1	2	2	4
Potomac River	4	6	5	5
Sideling Hill Creek	14	8	0	0
Town Creek	20	17	2	2
Wills Creek	17	5	6	6

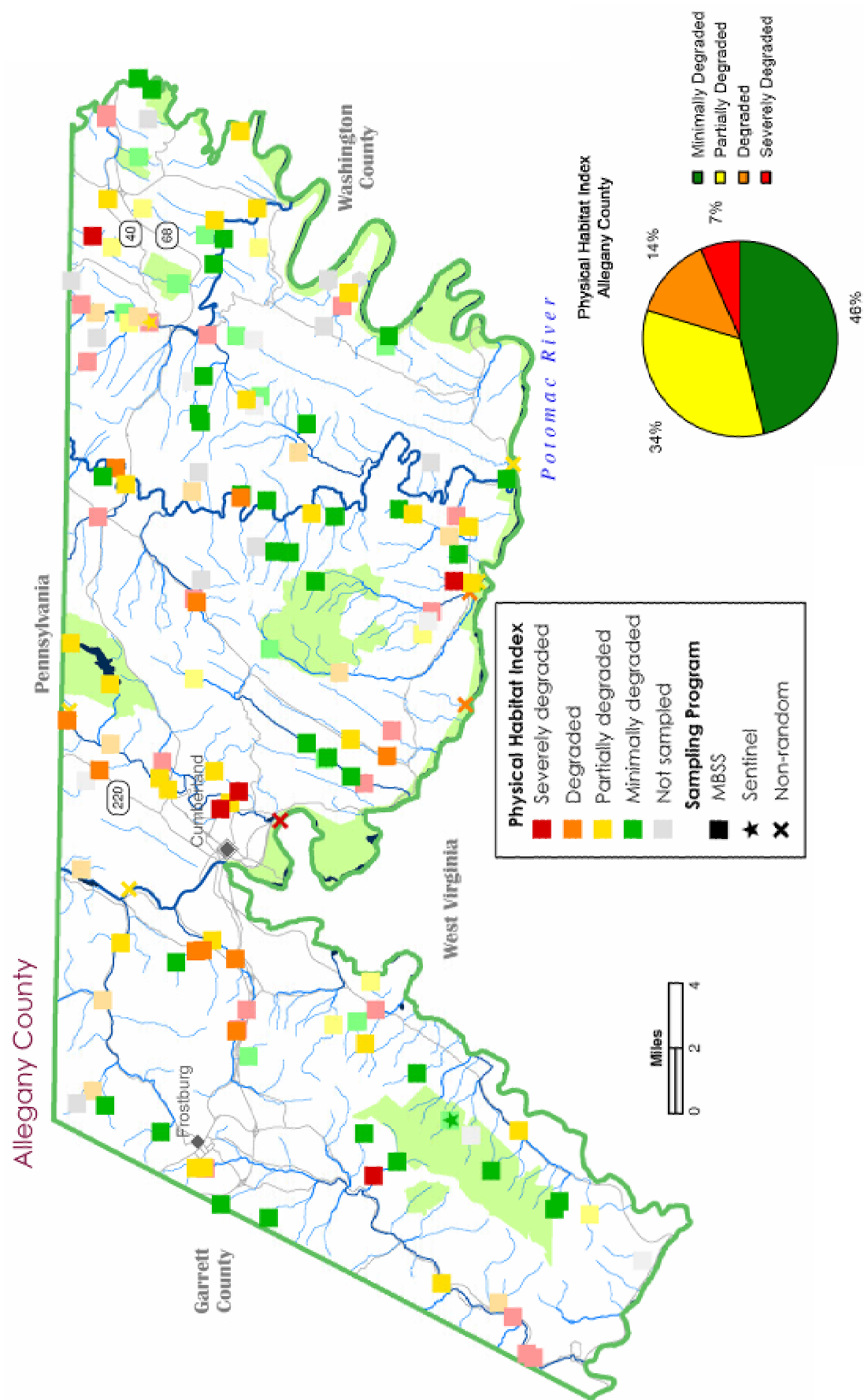


Figure 8-7. Physical Habitat Index (PHI) pie chart and map of stream habitat quality for Allegany County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie chart represents 2000-2004 data only).

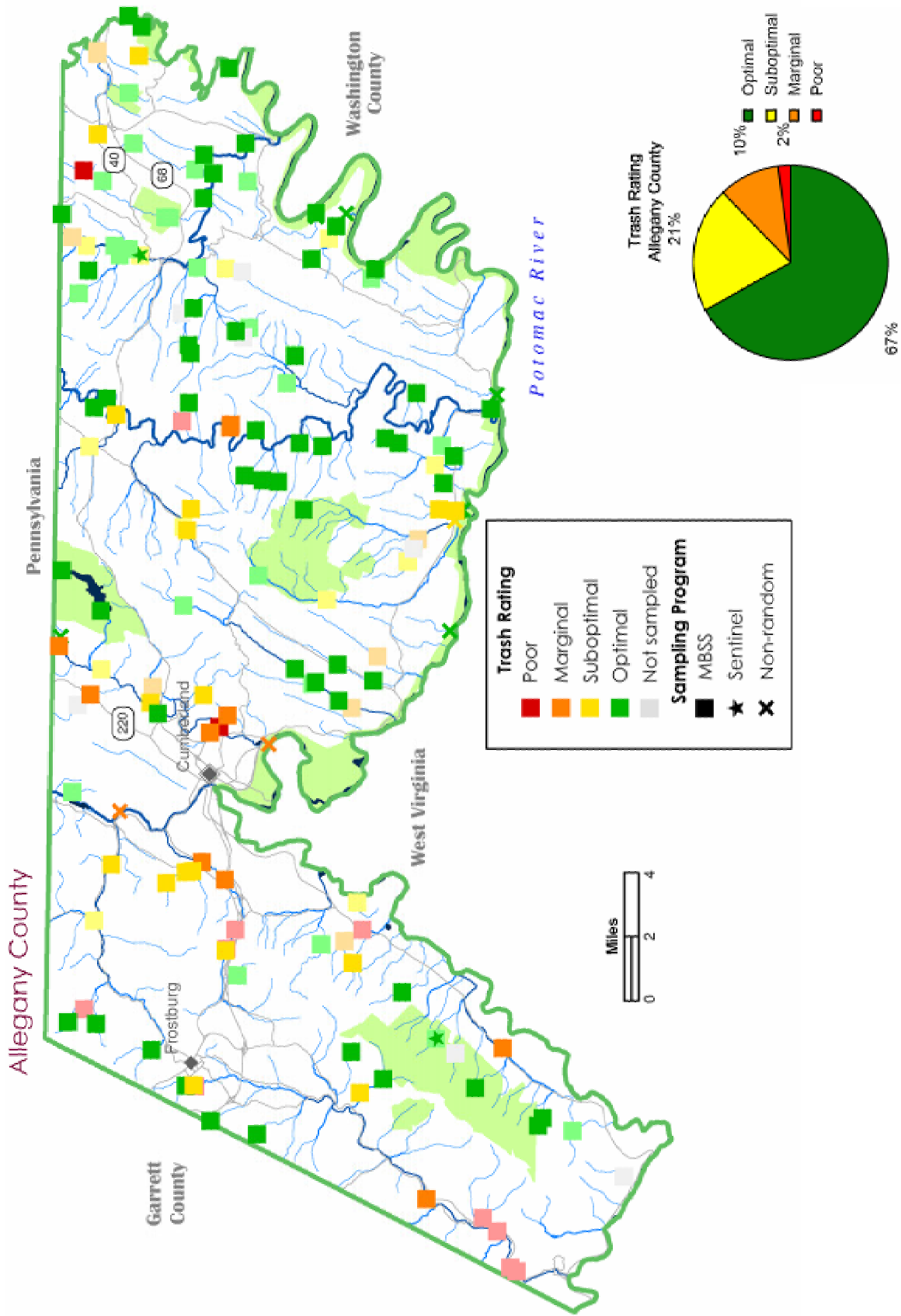


Figure 8-8. Pie chart and map of trash rating (0-20 scale) for Allegheny County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie chart represents 2000-2004 data only)

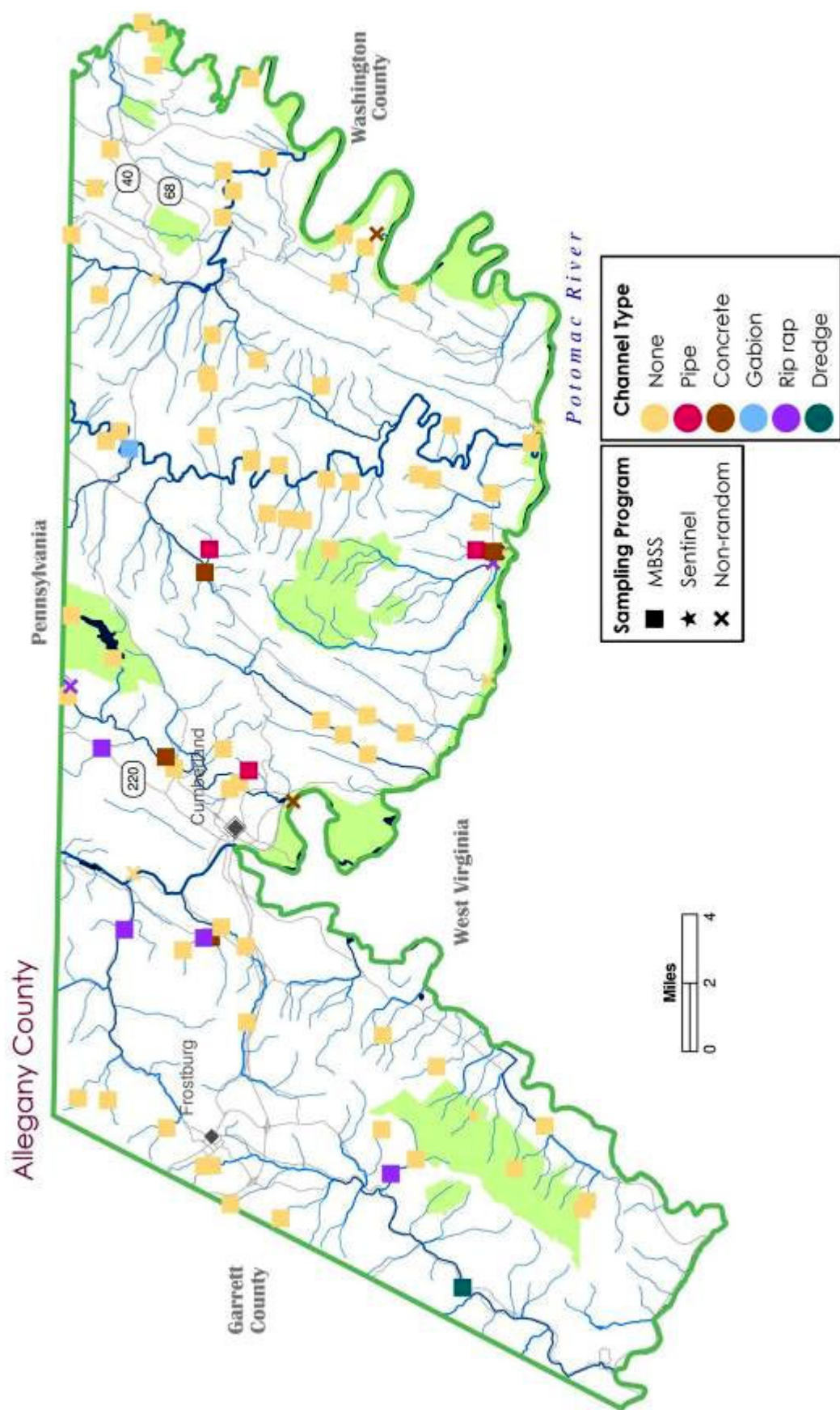


Figure 8-9. Map of channelized sites, by type, for Allegany County streams sampled by the MBSS during 2000-2004. *NOTE: When channelization is indicated, it does not necessarily mean that the entire 75m segment was affected.*

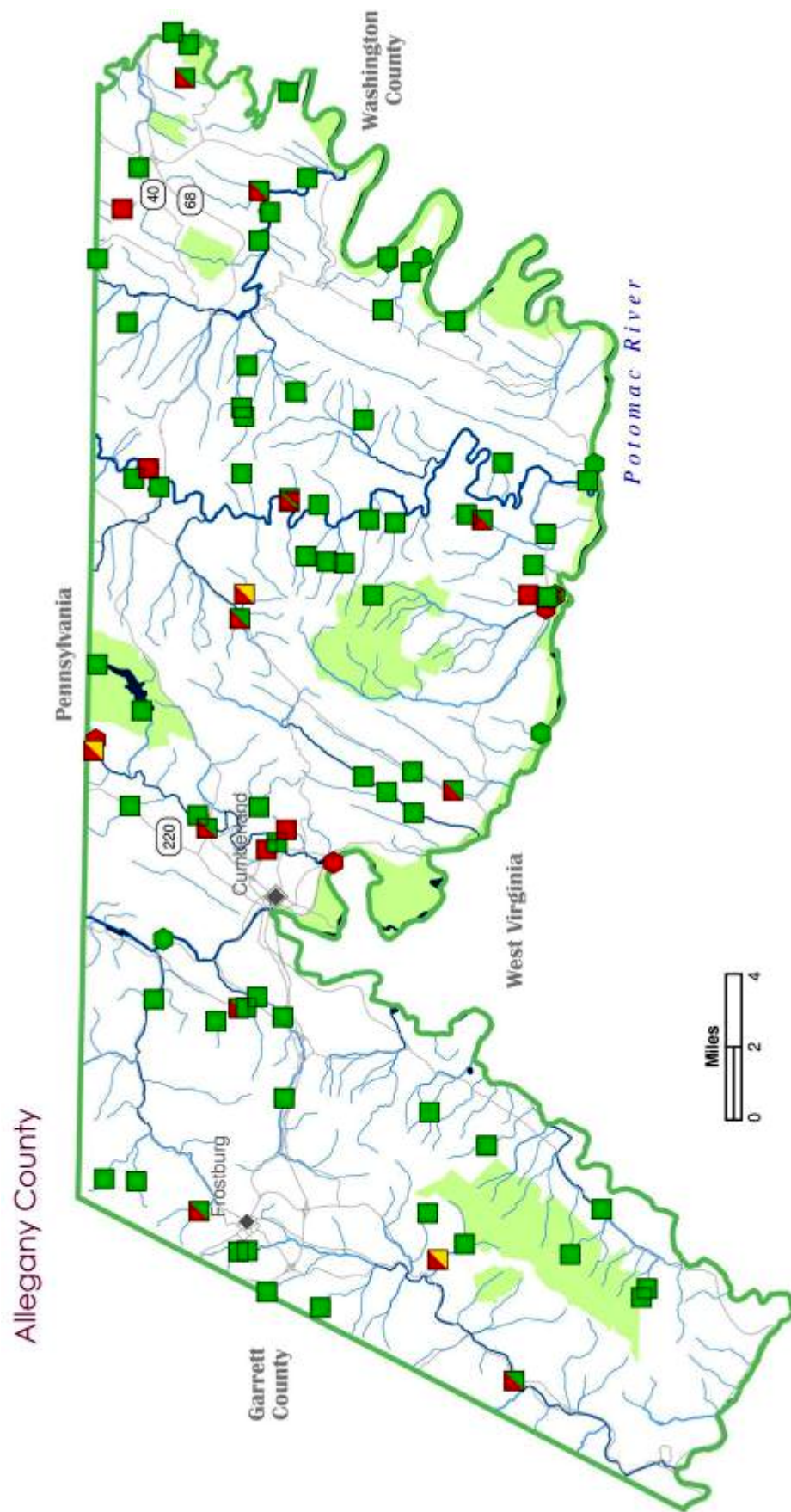


Figure 8-10. Map of sites with inadequate riparian buffers and buffer breaks for Allegany County streams sampled by the MBSS during 2000-2004. *NOTE: Multiple riparian buffer breaks sometimes occurred at a site, only the most severe was depicted.*

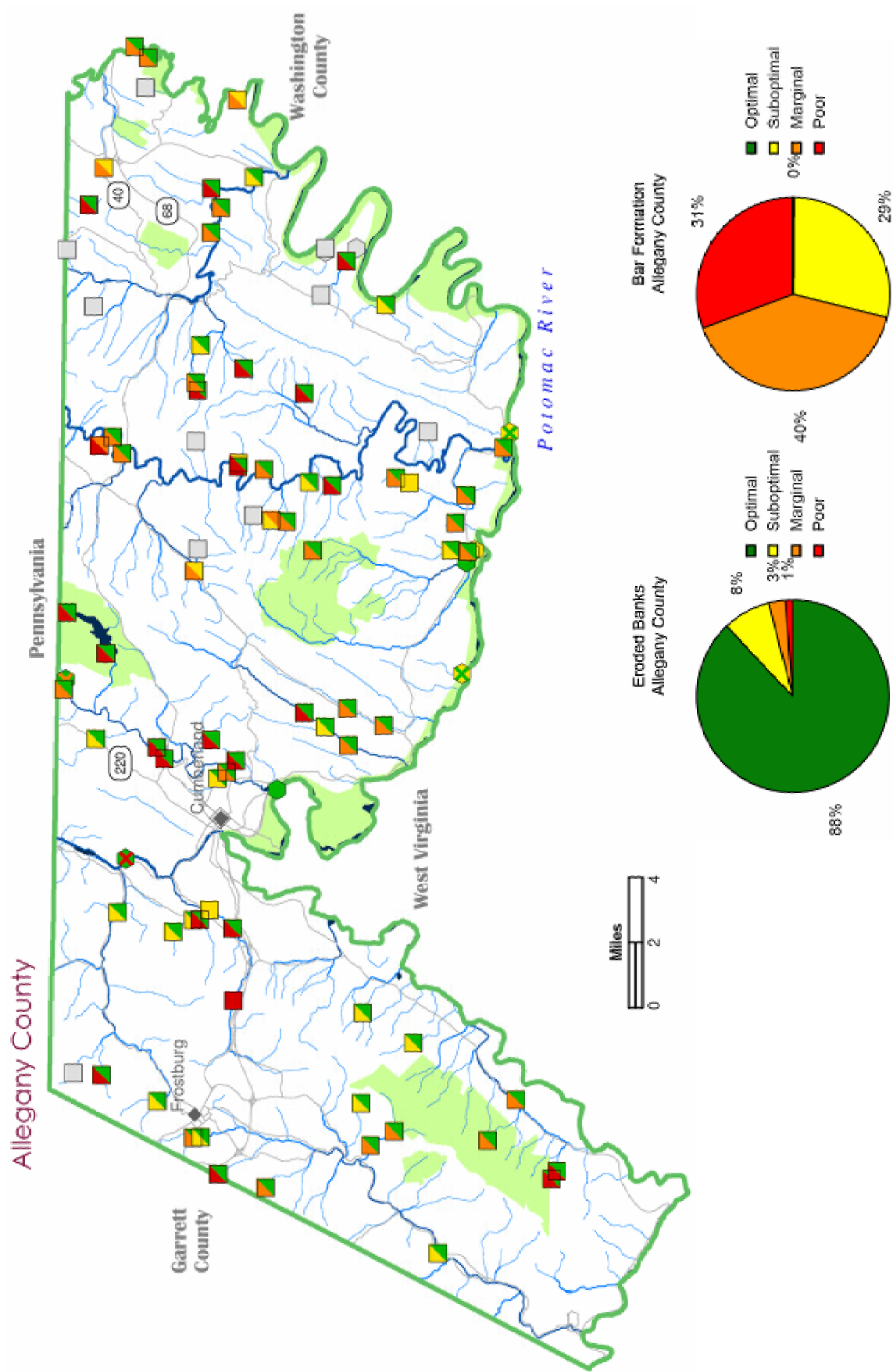


Figure 8-11. Pie charts and map of sites with eroded banks and instream bar formation for Allegheny County streams sampled by the MBSS during 2000-2004.

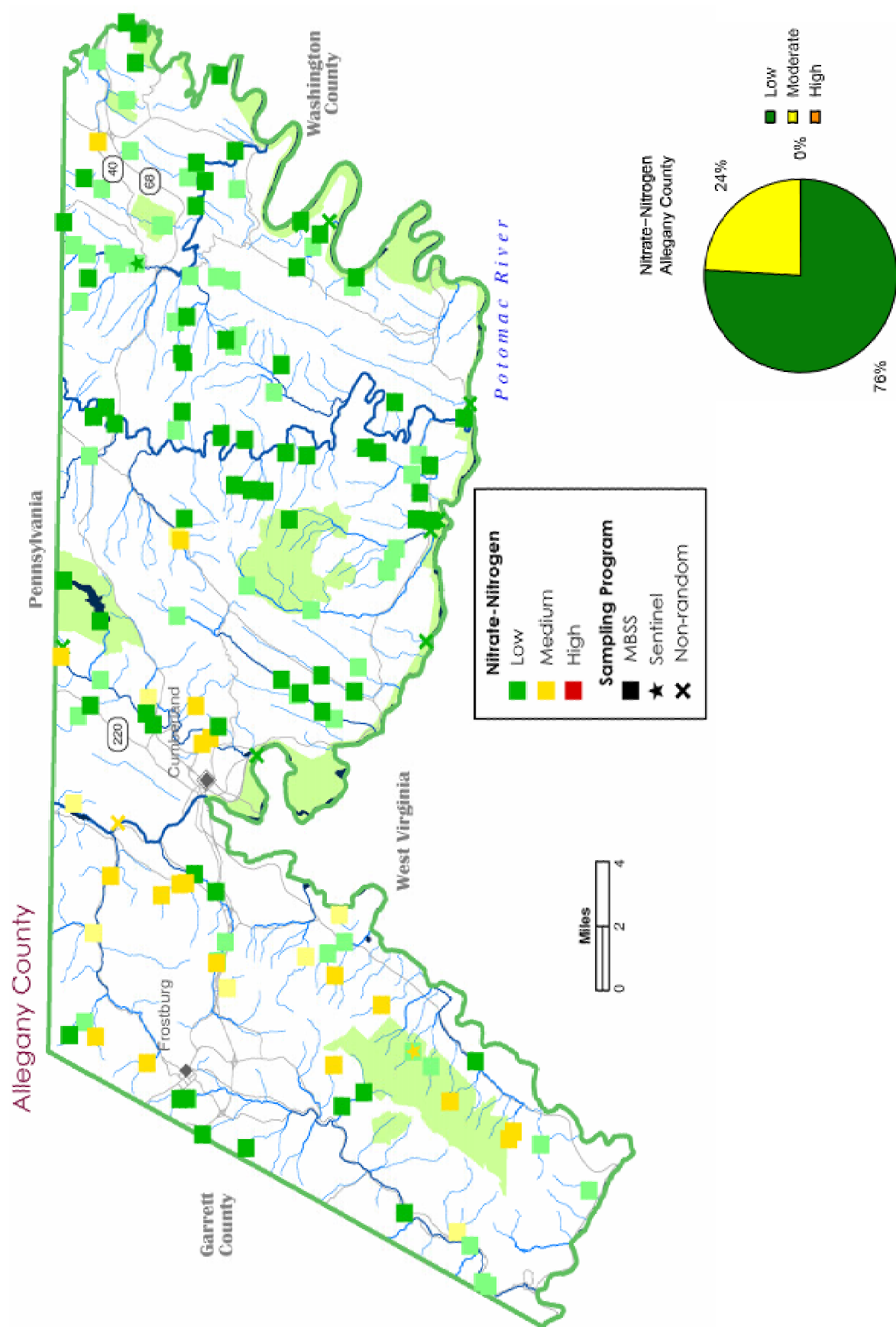


Figure 8-12. Pie chart and map of nitrate-nitrogen values (mg/l) for Allegany County streams sampled by the MBSS during 1995-97 and 2000-2004 (pie chart represents 2000-2004 data only). (Low = 1.0, Medium = 1.0 – 5.0, High = > 5.0)

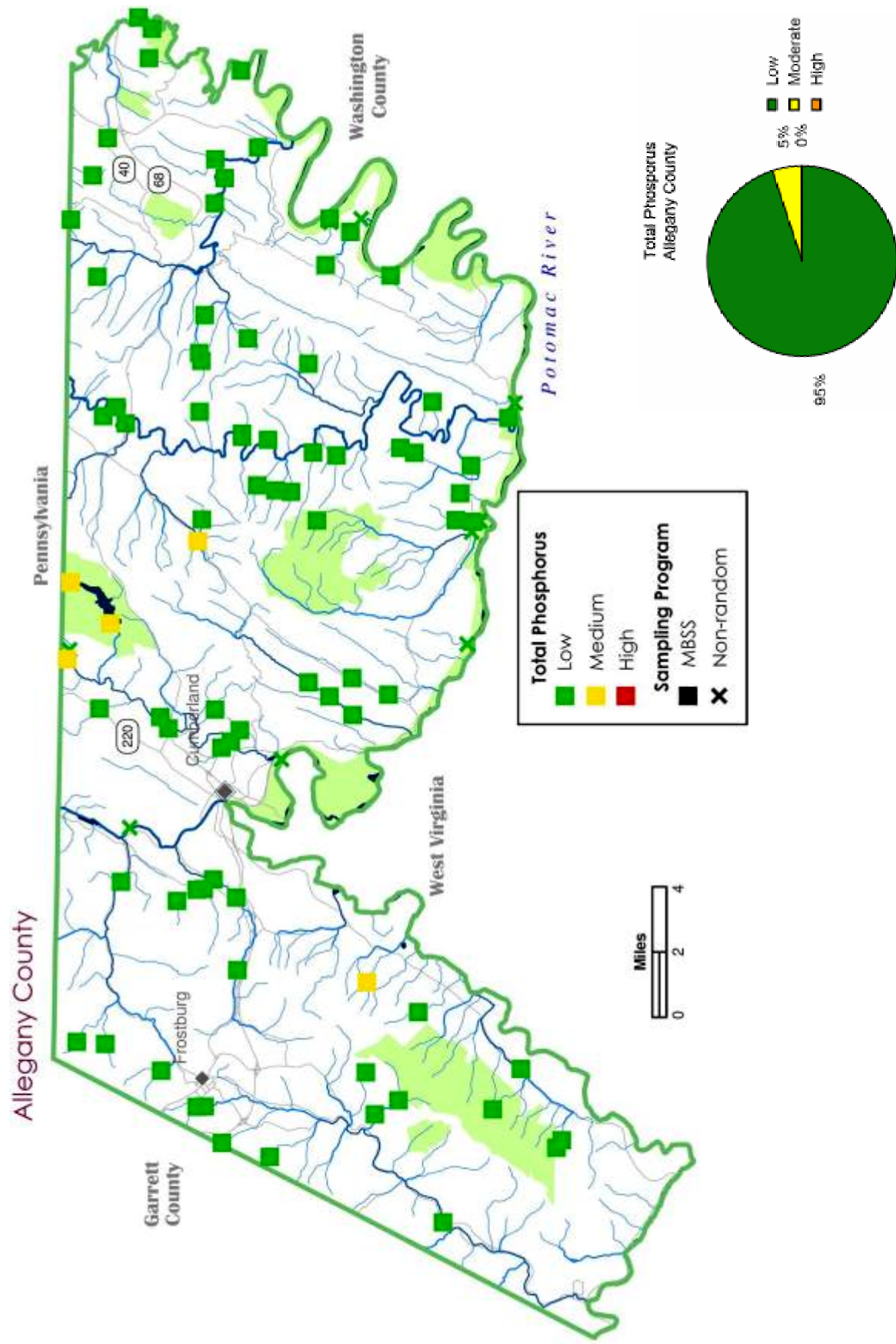


Figure 8-13. Pie chart and map of total phosphorus values (mg/l) for Allegany County streams sampled by the MBSS during 2000-2004. (Low = < 0.025, Medium = 0.025 – 0.07, High = > 0.07)

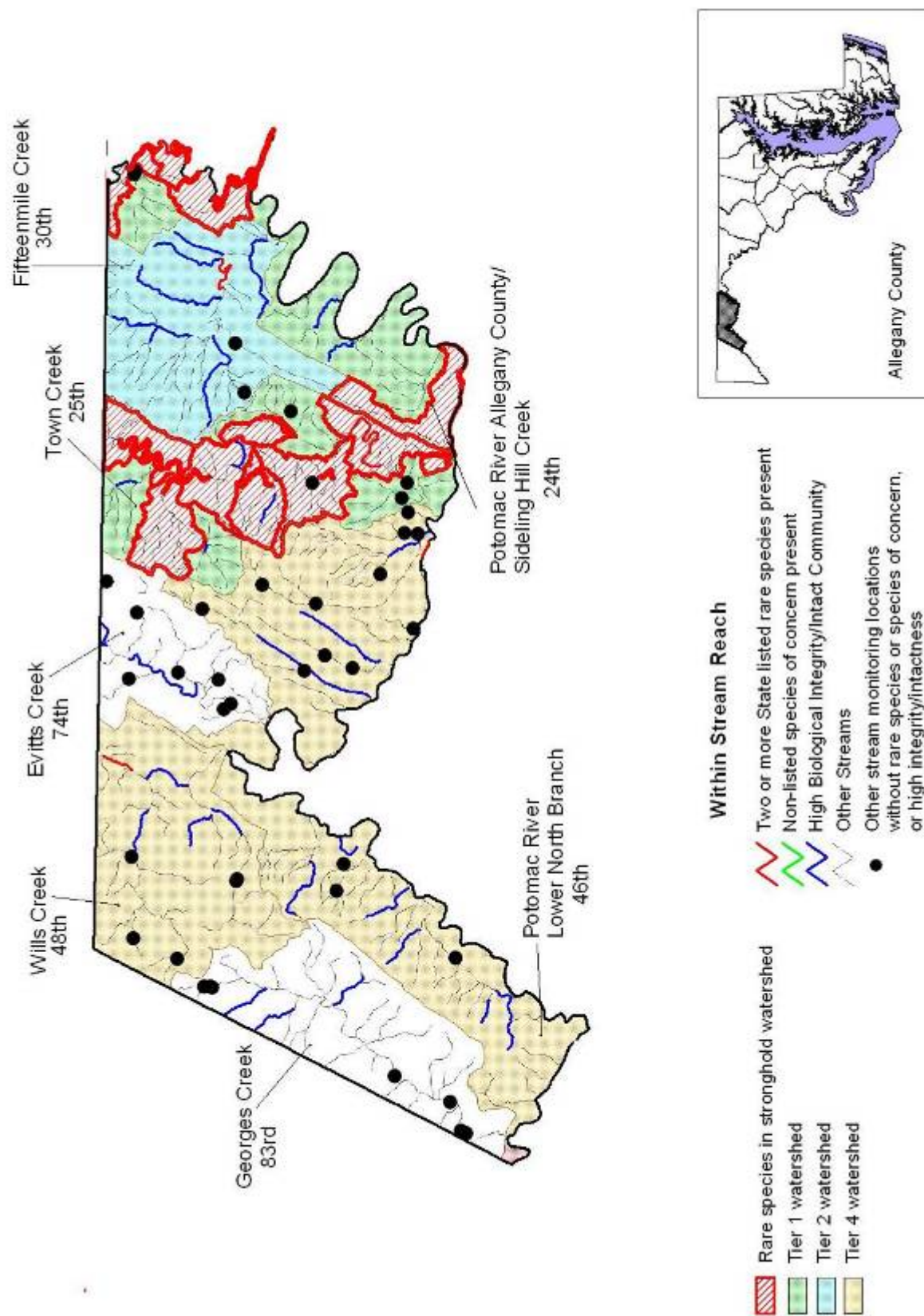


Figure 8-14. Aquatic Heritage Biodiversity Ranking map for Allegany County, by watershed. Data from MBSS 1994-2004, MBSS qualitative data, Raesly, unpub. data, Harris 1975, Thompson 1984, and DNR Natural Heritage Program database.